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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,070	03/22/2007	Hiroyuki Mori	JP920030117US1	2148

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IBM MICROELECTRONICS
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972 E
ESSEX JUNCTION, VT 05452

EXAMINER

SEMENENKO, YURIY

ART UNIT	PAPER NUMBER
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2841

MAIL DATE	DELIVERY MODE
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02/20/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,070	Applicant(s) MORI ET AL.	
	Examiner YURIY SEMENENKO	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/18/2008; 06/25/2008; 12/14/2006; 01/30/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. Figure 20 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 2841

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 are rejected under 35U.S.C. 103(a) as being unpatentable over Admitted by Applicant Prior Art (Background of Invention section) hereinafter AAPA in view of Saitou (US 5052103) hereinafter Saitou.

Regarding to claims 1 and 5: AAPA discloses in the "Background of the invention" section, at the time the invention was made, that it was well known how to make a printed wiring board fig. 20 comprising: a base substrate 500; a land conductor layer (at bottom of the via hole 700 in the layer 600) provided on said base substrate 500 at least in part thereof; an insulating layer 600 provided on said base substrate 500 and said land conductor layer, said insulating layer having a via hole 700 reaching said land conductor layer, and containing glass fibers (specification [0007]); a via conductor layer covering a surface of said via hole 700 and a surface of said insulating layer 600 at least in the vicinity of an opening of said via hole 700 (shown in fig. 20), said via conductor layer being connected to said land conductor layer (shown in fig. 20),

except, AAPA doesn't disclose a block layer provided between the surface of said via hole and said via conductor layer for preventing migration to said via conductor layer through the glass fibers inside said insulating layer, said block layer covering the inner wall of said insulating layer at least over a range from the uppermost end to the lowermost end where said glass fibers inside said insulating layer exist, and the lower end of said block layer is located above the surface of said land conducting layer.

Saitou teaches in fig. 6 and 7 a block layer 12 provided between the surface of said via hole 7 and said via conductor layer 8a, 8b for preventing migration to said via conductor layer 8 through the glass fibers 5 inside said insulating layer 4, said block layer 12 covering the inner wall of said insulating layer at least over a range from the uppermost end to the lowermost end where said glass fibers 5 inside said insulating layer 4 exist, and the lower end of said block layer 12 is located above the surface of said land conducting layer 6.

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention a block layer provided between the surface of said via hole and said via conductor layer for preventing migration to said via conductor layer through the glass fibers inside said insulating layer, said block layer covering the inner wall of said insulating layer at least over a range from the uppermost end to the lowermost end where said glass fibers inside said insulating layer exist, and the lower end of said block layer is located above the surface of said land conducting layer, as taught by Saitou in order to prevent electromigration, as taught by Saitou (col. 3:49-50).

Regarding to claim 2: AAPA as modified by the teaching of Saitou discloses all the features of the claimed invention as applied to claim 1 above, wherein said insulating layer is formed by a resin layer in which the glass fibers are buried (specification [0007]). Saitou also teaches the insulating layer is formed by a resin layer 4, fig. 6 in which the glass fibers 5 are buried (col. 6:29-32).

Regarding to claims 3 and 4: AAPA as modified by the teaching of Saitou discloses all the features of the claimed invention as applied to claim 1 above, wherein said block layer 12, fig. 6 comprises an insulating layer (resin layer col. 5:62-66),
except AAPA doesn't disclose said block layer comprises an insulating layer (resin layer).

Saitou teaches said block layer 12, fig. 6 comprises an insulating layer (resin layer col. 5:62-66).

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention said block layer comprises an insulating layer (resin layer), as taught by Saitou in order to prevent electromigration, as taught by Saitou (col. 3:49-50).

Regarding to claim 6: AAPA as modified by the teaching of Saitou discloses all the features of the claimed invention as applied to claim 5 above, wherein a lower end of

Art Unit: 2841

said first via hole 700, fig. 20 is located above a surface of said land conductor layer (at bottom of the via hole 700 in the layer 600),

except AAPA doesn't disclose a lower end of said first via hole is located below a lowermost portion of said glass fibers inside said insulating layer.

Saitou teaches a lower end of said first via hole 7, fig. 8 is located below a lowermost portion of said glass fibers 5 inside said insulating layer 4.

Therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made for AAPA to include in his invention a lower end of said first via hole is located below a lowermost portion of said glass fibers inside said insulating layer, as taught by Saitou in order to prevent electromigration, as taught by Saitou (col. 3:49-50).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wu et al. – US 7288462;

Yokogawa – PG Pub. No: 2003/0226121.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuriy Semenenko whose telephone number is (571) 272-6106. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on (571)- 272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Art Unit: 2841

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. S./

Examiner, Art Unit 2841

/Jeremy C. Norris/

Primary Examiner, Art Unit 2841